This multi-million-dollar tragedy forced the cancellation of a scheduled deployment.

Navy photos by PH2 Felix Garza

Navy photo by PH2 Matthew J. Thomas

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Watching a radar sweep circle the scope, again and again, like this CIC watchstander is doing, can get really boring.

The bridge lookouts in this mishap should have been scanning the horizon for contacts like the Sailor here is doing. Instead, they huddled and talked to each other.

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By Cdr. Elizabeth Rowe, USN (Ret.)

On the ship, the radar sweep circles the scope, again and again. Same three anchored ships. The CO checks with the OOD.

"Yes, sir, we'll keep circling the buoy at 2,000 yards," the OOD says. To calibrate ship's antennas, he thought the ship had to circle one particular buoy, steady at 2,000 yards and 15 knots.

"It's been a long week," the OOD thinks. "Weapons onload had some problems, but we got through it. Not much sleep in the last few days, but we're accomplishing the mission. We'll deploy in about a month, and if we keep working really hard, we'll have everything ready. Pull in tomorrow...can't wait to see my wife and kids...time with them is short."

Everyone aboard would agree it had been a long week. But before this night is over, it will become agonizingly longer.

The conning officer has the tough job of keeping the proper distance from the buoy. He stands in the port-side door, one foot on the bridge, the other on the bridge wing, keeping the buoy in sight at all times. Every minute or two, he has to make a rudder change, or the ship's circle won't be exact. "I've got so much to do," he probably thinks, "and it'll be midnight before I get off this watch. Got to get some sleep. Maybe I can grab a few hours, then get up before reveille and get started."

The CO retires to his at-sea cabin. "So much paperwork!" he reflects. "Just trying to keep operations flowing makes it tough to get to the admin stuff. I've got to get it done, though, because the crew is counting on my getting those fitreps and reports out on time. My best OOD is on the bridge. He did so well during the last exercise; I'm sure he'll take care of the ship."

The XO drops by the CO's cabin. He's been on the bridge the last couple of hours training the conning officer. Now, another

conning officer is on duty. The XO asks the CO, "Will it be all right if I go back to my cabin and complete the POD?"

"What's the status on the contacts?" the CO first queries.

"Same, sir, three anchored," the XO answers.

"OK, XO, go ahead and take care of your paperwork."

In CIC, the watch has been relieved. A sleepy watch officer relaxes, confident that his watch supervisor has the bubble. The surface tracker and DRT operator rotate once an hour. "Same three contacts...this is really boring," they think. Mistakenly, everyone seems to believe that because they are keeping station on the buoy, other ships will stay out of their way.

Around the ship, Sailors are settling down for the night. The DCA has retired to his stateroom, and an SK2 and an EN3 settle into their racks. Meanwhile, an IC3 grabs some chow on the messdecks before going on watch, and an EW3 stands in the forward smoking area talking to his buddies.

No one notices when one of the radar contacts is 10, then 9, then 8 miles away. Finally, the surface tracker sees a contact pop up at 7 miles. "Looks like it will come within 4 miles of the ship," she reports to the CIC watch supervisor.

He isn't worried because he, too, believes whatever ship is out there in the darkness, steaming toward them, will see them and stay out of their way. However, he tells her to report the contact to the bridge and to keep an eye on it. He doesn't think to remind the CIC watch officer or the OOD that the standing night orders require reporting contacts that come within 10,000 yards or less to the CO.

A new JL phone talker on the bridge takes the surface tracker's report and writes the information on a grease board. He then tells the OOD they have a new contact. The OOD doesn't hear that or any of the subsequent reports from the JL phone talker.

The surface tracker watches the contact and talks to the DRT operator, who keeps marking it. The distance is closing, and the radar sweeps that had seemed so dull and repetitive are beginning to tell a new, disturbing story. When the surface tracker realizes the contact is going to come within 1,100 yards, she passes this new estimate to the CIC watch supervisor.

"Do a maneuvering-board solution," he says. It's now 2330.

The lookouts are huddled on this cold night. Bored, tired and chilled, they talk to each other, rather than scanning the horizon. They've done this before; the lights from shore, as well as those from anchored ships, keep changing as they circle, but they assume no one will cross their path.

The quartermaster under instruction on the bridge sees a ship to starboard and asks the signalman, through sound-powered headphones, "What ship is out there?"

The signalman, looking confident, tells the quartermaster under instruction it's one of the ships seen earlier at anchor and is nothing to worry about. The forward lookout now sees a ship to starboard and tries to let the bridge know through sound-powered phones, but there's too much chatter on the circuit.

Two minutes later, the CO hears a sound like an engine out the port hole of his cabin. He gets up to go to the bridge and see what's happening. He isn't going to like what he sees. The surface tracker in CIC sees the blip of a contact converge with the center of the radar screen. She yells, "They're going to hit us!" It's now 2333.

In the port-side door, the conning officer sees something out the corner of his eye to starboard. Looking up, away from the buoy, he sees a huge, dark object. "What's that?" he asks the OOD.

The OOD says, "What?" then looks in the direction in which the conning officer is staring in disbelief. The OOD shouts, "All stop! All back full! Sound the collision alarm!"

At that instant, the CO appears on the bridge and adds, "Set general quarters!" The collision alarm goes off, then comes the grinding crash of a 27,000-ton, 657-foot container ship, moving at 18 knots, slamming into the ship's starboard side. For endless moments, the air is filled with the

sickening sound of steel against steel. The only thing that keeps the bow from being sheered off is the forward gun mount. It's now 2334.

The CO runs to the starboard bridge wing and, with his right hand, reaches up and touches the side of the container ship as it gouges its way down the starboard side. He gets on the bridge-to-bridge phone and calls the container ship to see if everyone is OK.

In DC central, the DCA arrives from his stateroom, where he heard the alarms and felt the collision. He scrambles to set up for GQ. It takes eight minutes to set Zebra throughout the ship. His biggest problem is securing a ruptured firemain forward.

The SK2 *(see page 6)*, whose GQ station is Repair 2, hears the loud crash and feels the ship tilt. She smells fuel and dresses as fast as she can to get to her GQ station. Although afraid, she persuades herself to stay calm and make sure she does her job.

The IC3 *(see page 6)* hears the GQ alarm and grabs a table when the ship lurches. He also hears bumping and scraping as the container ship moves down the starboard side. En route to his GQ station, he sees black smoke coming from the starboard forward passageway and runs to secure power, in case a fire has broken out. Much later, when things have settled down, he cries with his friends, relieved they are alive and well.

The EN3 *(see page 6)* awakens, startled by the sound of the engines reversing, followed closely by the alarms sounding. He hears a loud crash and fears that weapons brought aboard during the recent onload are exploding. On his way to his GQ station, he, too, sees smoke and starts dogging down doors. The adrenaline is rushing, and he worries that death may be near for himself and shipmates. He sees a lot of new Sailors stumbling and struggling because they are so afraid.

Meanwhile, the collision throws the EW3 who had gone to smoke a cigarette into a bulkhead. Recovering, he heads for his GQ station. While moving through the passageways, he shakes a few Sailors who are in shock and urges them to get to their stations. He is taken aback when he gets to the fo'c's'le and sees the damage. Later, he considers how lucky he may have been. "If the conning officer hadn't ordered back full, the collision might have occurred right where I was smoking," he realizes. "I could have died."

What caused this more-than-60-million-dollar tragedy in which a deployment had to be rescheduled?

First, there was a loss of situational awareness by many watchstanders. The OOD, conning officer, lookouts, quartermaster, and signalman were unaware of the container ship until moments before the collision. Even then, most of them didn't immediately see what a desperate situation they were in.

There were many reasons, but the key was an attitude of over-confidence, which kept them from trying to get a handle on the big picture. The crew had circled this buoy several times before without incident. A brief the previous day had revealed no new concerns, so the thinking was, "With no new dangers, we don't need any special directives in the night orders." But, operational risk management (ORM) would have helped. No one had discussed how to do the maneuvering board when the ship is in a constant turn. The lookouts and the signalman didn't realize the key roles they played in keeping the ship out of danger.

Next, fatigue was a factor. The ship's deployment schedule had been moved up several months, and, as a result, many requirements were compressed. In their effort to do everything on time without complaining, the crew had driven themselves to a state of constant fatigue. A weapons onload had been completed just the night before the mishap. It had been difficult, and many crewmen had worked through the night to finish the job. Reveille had sounded very early the day of the collision, and the crew had started calibrating the antennas immediately after sea-and-anchor detail. There was no time to rest or re-think what the dangers were, particularly for the CO and XO.

Another factor was that people were too focused on one task, without keeping an eye on the big picture. Everyone was bore-sighted on the calibration buoy. They had the mistaken notion that as long as they kept the buoy at the right

distance, all would be well. Obviously, that was not the case here or in many other "routine" events.

Poor communications among the watchstanders also was a factor. The OOD and the CIC watch officer didn't talk much. No one monitored the bridge-to-bridge radio-telephone or used it to warn ships in the area about what the destroyer was doing. The JL phone talker, lookouts and the CIC surface tracker didn't ensure the bridge watch knew everything they knew.

Finally, supervision was lacking. Neither the XO nor the navigator stayed on the bridge during this critical evolution, as required by the ship's navigation bill. In CIC, the watch officer had put his watch supervisor in charge. The boatswain's mate of the watch wasn't supervising the lookouts or the JL phone talker. The OOD didn't speak to his bridge team about making sure they stayed alert to possible hazards during the watch.

The people involved in this mishap were all talented and capable men and women who lost situational awareness and were blind to the risks related to this calibration event. If the crew had used ORM, they would have gained valuable insight into the possible hazards they faced and could have taken steps to minimize them. Don't rely on the standard procedures we have in place for everyday operations to protect you. Investigate all the possible things that can go wrong and know what you're going to do if they happen—before an operation starts.

The author was assigned to the Naval Safety Center when she wrote this article.

Why This Collision Occurred

By Cdr. Elizabeth Rowe, USN (Ret.)

Imagine you're a high-school baseball coach, and one of your players who has been hitting well starts to lose his edge. You have some data: when the slump began, what pitchers he faced during his off games, and what his batting average was and is. Why is he in the slump, though?

If he isn't injured, finding the answer to that question will require you to investigate. Perhaps you find that he has a drug or alcohol problem. Maybe he's having trouble at home or in school. Once you establish the "why," it becomes clear what to do about the problem and help him return to his winning ways.

We believe mishaps are similar to this example. If we can identify the causes, we're much better prepared to correct a problem and reduce the number of mishaps. In the *NavOSH Program Manual for Forces Afloat*[1], we outlined a new method for describing causes when you report afloat mishaps. Causes fall into four main categories (human, material or equipment, procedures, and design). Beneath these four categories are a number of subcategories. Keep in mind that any mishap, particularly a major one, can involve more than one cause. When you report a mishap, you must examine and describe all the causes.

Our mishap investigation into the collision between a destroyer and a merchant ship offers a good example of this new method. This mishap had only human causes, which is typical. Here's the narrative of one cause in the collision: The OOD failed to stand a proper watch. This is a human cause because it's associated with people. It falls under the subcategory "unsafe supervi-